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District Conservationist

GROUP ORGANIZATION MEETING OUTLINE

This outline is long and covers considerable material but not in detail. The one presenting the information and organizing the group should choose the material which fits his own individual wishes. He should keep the first part of the meeting, prior to showing the slides, below 30 minutes. The showing of the slides and the discussion, while slides are being shown, should not require more than 30 minutes and the balance of the meeting should be in discussion of the work plan and farm planning procedure as shown on pages 11, 12, and 13.

Reserve

LECTURE METHOD

1. Purpose of meeting - to give an overall picture of the Conservation Problem.
 - A. Conservation, a national problem has no regard for county, state, or national boundaries.
 1. Man destroyed natural cover
 - a. Forests
 - b. Shrubs
 - c. Grass
 2. Soil loss by wind and water erosion ("Saving our Soils" by H. H. Bennett)
 - a. Land twice impoverished Atlantic cost
 - (1) 522,000,000 acres cropland United States
 - (2) 50,000,000 acres cropland destroyed
 - (3) 50,000,000 acres cropland nearly ruined
 - (4) 100,000,000 acres lost greater part of topsoil
 3. Woodland destroyed
 - a. No chance to reestablish itself
 - (1) Grazed
 - (2) Burned over
 - b. 10 acres left for each 100 acres originally on the land
 - c. Value disregarded as a crop
 4. Rivers, harbors, highway drainage
 - a. Channels and outlets silted full
 - b. Fish and oyster spawning beds covered.
 - c. Millions of dollars appropriated each year to keep channels open and maintain levees
 - d. High maintenance cost to county road system
 - e. Problem continues to pyramid
 5. Wildlife destroyed
 - a. Beaver
 - b. Carrier pigeon, prairie chicken, song birds.
 - c. Insects increased as birds decreased
 6. Floods caused by misuse of the land
 - a. Drained lakes
 - b. Straightened channels
 - c. Cleantilled crops planted up and down hill
 - d. Overgrazed pasture land.
 7. Dust storms
 - a. From Dust Bowl to middle Atlantic
 - b. Disregards all natural obstacles or boundaries

MAR 14 1946

B. Philosophy of Conservation Develops

1. Soil and timber resources a National trust
2. 6,000,000 farmers must develop national viewpoint regarding wind and water erosion
3. Use combination of best scientific methods known
4. Years of research by Soil Science Department of U.S.D.A. as background information
5. Erosion removes 21 times as much plant food as crops
6. 13 major reservoirs in the Carolinas and Georgia built for power and recreation silted completely full. Average life of dam 30 years.
7. Soils badly eroded and heavily cropped as deficient of mineral. They provide poor quality of food for human consumption and feed for livestock.
8. Jeopardize health and safety of the nation

For example: It is possible to vary the calcium (lime) of a salad leaf as much as sixty fold by varying the calcium content of the soil in which it is grown. (Report, Tarr Hallow Conference)

C. History of Conservation in United States

During the 1800's, the country's attention was directed primarily to the development of the vast agricultural wealth of the west. Industrialization based on these agricultural resources helped promote the extensive use of the land, such as the invention of steel plow, 1839.

1. Homestead Act, 1862 (land dirt cheap)
2. Rivers and harbors act result of erosion
3. Establishment of agriculture board, 1862
4. Land Grant College, 1862
5. Forest Reserve Law, 1891
6. U.S.D.A. Established (Soc. App.), 1889
7. Soil Science Department established early 1899
8. First Soil Erosion experiment - Columbia, Missouri, 1917
9. Experiment Farm purchased (12), 1929
10. SCS established, April 27, 1935
11. Demonstration projects, 1935-36-37 (explain)
Closed 1938-39, replaced by Districts
12. SCS Supv. CCCamps (plugged gullies)
13. First Districts Law passed, Ark., 1937
Now 45 states have District Laws and 989 Districts, still growing.
14. The Districts Law brings to the farmer of any community within the District the opportunity to join with the SCS and other agencies of the government in the formulation of farm conservation plans through the District Governing Body, for the first time in our history.

D. State Action

1. Iowa passed Districts Law, 1939
2. Your District organized, 1941, '43, '44
3. Your District Governing Body, (name them) with the help of other agricultural agencies in the county, has written the District program and District work plan which meets with the approval of the assisting agencies.

4. The sole purpose of this meeting is to explain the county District Program and Work Plan and develop or organize a group for farm conservation plans. This will give you an opportunity to help in correcting the problems of misuse of the land.

LECTURE METHOD ILLUSTRATED (Slides)

II. Abuse and Correct use of the land

- A. Problem or abuse
 1. Cultural methods
 2. Overgrazed pastures
 3. Cutover woodland
 4. Sheet and gully erosion
 5. Wildlife destroyed due to lack of cover
 6. Extent of erosion in state and county
- B. The results of abuse of the land
 1. Poor land - poor crops
 2. Poor land - poor livestock
 3. Poor land - poor schools
 4. Poor land - poor homes or abandoned homes
 5. Poor land - poor churches or none at all
 6. Poor land - poor health
 7. People are finally driven from the land
 8. Ghost towns
- C. The method of correction
 1. Land use adjustments, putting every acre to its best use
 2. Rotations
 3. Soil treatments
 4. Practices
 5. Pasture management
 6. Woodland management
 7. Wildlife management
 8. A prosperous permanent community through proper use and care of the land.
- D. Views of farms under plan with practices established
 1. Action pictures use of equipment
 2. Waterways, hay being removed
 3. Ponds, for water supply, livestock, wildlife, fish
 4. Wildlife nesting and feeding acres
 5. Woodland for building material and posts
 6. Air views of groups of farms under plan

LECTURE AND DISCUSSION METHOD

III. Economic benefits of farm conservation plan

- A. Farm production per acre increased and stabilized
- B. Equity in each farm protected
- C. Total wealth of community goes higher
- D. Cultural and social advancement assumed

IV. Duties and responsibilities (Work Plan, pages 14-15)

- A. District Governing Body
- B. Farmer leader
- C. Farmer
- D. SCS and other assisting agencies

MAR 27 1946

- V. Farm planning procedure (Work Plan)
 - A. Conservation Surveys
 - B. Number of meetings (Farm Planning)
 - C. Who approves agreements
 - D. Who alters or changes agreements
 - E. Costs of labor, materials, planning (Who pays)
- VI. Organize Group
 - A. Sign request for assistance (1 copy)
 - B. Elect group leader
 - C. Complete individual Working Agreements (3 copies)
 - D. Complete group Working Agreement (2 copies)

Remember all requests for assistance, elected leaders, and group working agreements must be approved by the District Commissioner and priority set up prior to establishment of practices.

If farm planning will be done before practices are to be established, or the spring work starts in the field, no working agreements need be signed.

After the working agreements are approved by the District Commissioners, the group leader received his copy of the group working agreement plus 1 copy each of the Individual Working Agreements. The other copy is given to the Work Unit Technician.

Materials Needed

1. Slide Projector and Slides
2. Screen
3. Working Agreements, Individual and Group
4. Extra copies of Work Plan

SOIL CONSERVATION DISTRICT

GROUP NO. _____ REPRESENTED BY MR. _____ WHO IS REFERRED TO
BELOW AS THE LEADER.

ADDRESS

[illegible]

The Leader Will

- ## The District Will

1. Furnish the leader with assistance, as available, when requested, to carry out the activities listed on the reverse side of this page on a seasonal basis and prior to the time Conservation Plans can be completed.

[illegible]

(Group Leader)

(District Commissioner)

2 - copies
1 - Leader
1 - Technician (Work Copy)

Iowa Docket 1944

REQUEST FOR ASSISTANCE

To the Soil Conservation District Commissioners:

We, the undersigned land owners and operators, request that assistance be given us in the conservation farm planning to reduce the soil and water losses and maintain or increase the value of the soil resources in our community as follows:

1. For conservation surveys and conservation farm plans for each individual farm, and a series of farm planning meetings, which will be held in the community where our farms are located.
2. For assistance in application of conservation practices, under WORKING AGREEMENT between us and the district, which will aid in meeting our war production-conservation goals for 194__ or prior to the time individual farm conservation farm plans can be completed. We make this request in order to reduce waste of our soil resources now, and in accordance with District Work Plan.

We understand that technical help as available will be provided to assist us in preparing a conservation plan for each farm and in establishing the plan on the land. We also understand that when the planning is completed a cooperative agreement may be entered into between each farmer and the district.

Name

Acres

Address

[illegible]

We have elected Mr.

(Address)

Date _____

"SOIL CONSERVATION IS UTILIZATION OF SOIL RESOURCES WITHOUT WASTE"

FARMER-DISTRICT INDIVIDUAL WORKING AGREEMENT

SOIL CONSERVATION DISTRICT

State of Iowa

This agreement entered into by the _____ Soil Conservation District referred to below as the "District" and the undersigned, hereinafter referred to as the "Farmer".

Recognizing the desirability of carrying on some undertaking this cropping season, which will be necessary in order to meet the Production-Practices goal, made so necessary due to the war and prior to the time conservation plans can be completed, the district and the farmer mutually agree through group action to the following:

1. The farmer will carry out the Production Conservation practices listed below and on the acres stated. He will maintain them to the best of his ability, working with this neighbors group.
2. The District will furnish to the farmer such information and technical assistance, as available, when the work is to be done on the farms of the group, in which the farmer is a part, and at the request of duly elected leader.
3. This agreement is understood by the farmer and the District and neither shall be held liable for damage to the other's property or personal injury, caused by accident resulting from carrying out the practices.

*No.	KIND	UNITS
1.	Contouring Intertilled Crops	
2.	Contour Seeding	
3.	Establishing Contour Stripcropping	
6.	Establishing sod waterways	
7.	Maintaining Sod Waterways	

Acres in Farm _____ Signed _____
(Farmer) (Address)

3 or 4 Copies
 1 - Operator
 1 - Owner
 1 - Technician (Work Copy)
 1 - Group Leader

Approved _____
 (Group Leader)
 Authorized Representative of the District

*AAA Practice Number and Practice upon which payment can be earned.

CONTOURING SCHOOL

Preliminaries

1. Publish notice of school
2. See field before meeting
3. Equipment
 - a. Plow
 - b. Stakes
 - c. Instruments to run lines
 - d. Hand ax
 - e. 100' chain or 1/4" rope
4. Discussion or Introduction
 - a. Disadvantages
 - b. Advantages
 - c. Inexpensive
 - d. Explain instruments
5. Line running
 - a. Where? Why?
 - b. First line to go down the hill so that you can just see over the hill top as general starting point. Run one line above this line in most cases.
 - c. As many lines as necessary to control erosion
 - d. Let every man run each instrument shown
 - e. Plow in lines
 - f. Leave waterways and head lands proper width.
(Waterway edges should be left uneven)
6. Summarization
 - a. Rate of planting
 - b. Weed control. 2 or 3 cultivations before planting.
Harrow after planted about 3 days; use weeder or harrow after corn 2-1/2 or 3" high. Use sweeps on cultivators. Use furrow openers in planting.
 - c. Contour bulletins handed out.
7. Observations and follow-up
 - a. Summer and fall tours to study results

INEXPENSIVE PRACTICES THAT CONTROL EROSION, ETC.

1. Grass waterways or meadow strips
2. Contouring
3. Covering organic matter
 - a. Use disc jointers instead of common counter
(Install them so that the disc throws the furrow slice in the opposite direction from the plow to avoid side-draft. Oliver disc hillers can be installed with very little expense.)
4. Re-arrange tractor hitch for plowing on the contour

PLANNING MEETING NO. 1

I. Opening of the meeting by the group leader

LECTURE METHOD - 10-15 Minutes

II. Purpose of the meeting

- A. Group has petitioned the District Commissioners for assistance in a simple practice program, conservation surveys of their farms and a series of farm planning meetings
 - 1. Assistance through working agreements
 - 2. Conservation surveys made
- B. Give the group information that will be of assistance in working out their farm plan
 - 1. Farmer under no obligation, by attending planning meetings or by having technician go over farm with him, to enter into a plan with the District

III. History of erosion

- A. State Reconnaissance Survey, 1935
 - 1. Give erosion conditions as outlined in survey
- B. Condition in County
 - 1. 5,000 acres destroyed
 - 2. Less topsoil - less sponge
 - 3. Effects of droughts of 1934 and 1936
 - 4. Depletion of plant food, organic matter, and humus makes it harder to maintain rotations
 - 5. Sheet erosion advances to gully erosion

IV. What is conservation?

- A. Conservation is use without waste and applies to all of our natural and human resources in the nation
 - 1. Farm accidents cost the labor equivalent of 10 bushels of corn for each person in the United States in 1942
 - 2. Fire

V. Whose problem is conservation?

- A. Conservation is not only the individual's problem but that of the community, county, state, or nation so long as our roads, schools, churches, etc., are maintained from public funds or as a community enterprise.

DISCUSSION METHOD

VI. What is a Conservation Farm Plan (15-20 minutes)

- A. It is a blue print of the job to be done
- B. Requirements or factors to be considered in a Farm Conservation Plan
 - 1. Correct land use
 - 2. A system of cropping and soil treatments which will maintain the fertility of the soil and help prevent erosion
 - 3. Special practices such as drainage, contour farming, buffer strips, strip cropping, terraces, diversions, contour furrows, ponds, etc., if they are necessary

4. Field arrangements which will contribute to good rotations, eliminate point rows, and make stock water available for each field
5. Good pasture for at least 8 months of the year by the use of supplementary pastures and the renovation of permanent pastures
6. Types of livestock and feeding methods which will make most efficient use of feeds produced on the farm

These points are developed from the group. Group may present many more points but all should be condensed to the six points.

VII. Correct land use (45-50 minutes)

- A. Correct land use is the development of plans which over a long period of time will best serve the general welfare. Putting the land to the use where it will give the best return and at the same time keep it in place.
- B. What is needed as a guide toward correct land use?
 1. Soils inventory of the farm showing soil types, slope, and degree of erosion
- C. Develop land use classes
 1. Factors that determine the land use
 - a. Productivity, slope, erosion, drainage, stoniness, etc.

All of point VII to here are developed from the group

2. Give farmer folder including: Colored conservation survey map, legend and land recommendations according to use capability sheet and plain photograph of farms. (Plain photograph of farm is included because it shows details of farm much more plainly than colored conservation survey map)
 - a. Have group rank colors, according to productivity, from their colored conservation survey maps
 - b. Go over capability classes with the group as listed on the land recommendations according to use capability class sheet
3. Show group how to read conservation survey maps by use of legend
 - a. Spend enough time to be sure group thoroughly understands reading of conservation survey map by use of examples on the blackboard
4. Tell group why colors are used

LECTURE METHOD

VIII. Soils - (10 minutes)

- A. Formation of soils and types of materials from which soils are formed
 1. Wind blown or loessial materials
 2. Materials transported by ice
 3. Materials transported by water
 4. Residual materials
 - a. Give prairie and timber types in the community from each class of parent materials

DISCUSSION METHOD

IX. Crop Rotation (10-15 minutes)

- A. A crop rotation is a recurring succession of crops grown on the same land
- B. Reasons for using crop rotations (list on blackboard)
 1. Maintain and improve fertility of the soil
 2. Conserve soil and moisture
 3. Weed control
 4. Disease and insect control
 5. Increase farm income

These reasons are developed from the group. Many more may be presented by the group. No discussion of the reasons is taken up at this time.

X. Have group set time and place for the next meeting.

XI. Give each one present a summary of the material presented at this meeting. This material should be fastened in his folder.

Material Needed

1. Blackboard
2. Folder for each farmer containing
 - A. Colored conservation survey map for each farm
 - B. Plain land use map
 - C. Legend and land recommendations according to use capability sheet
3. Summary of Planning Meeting No. 1

SUMMARY 1st PLANNING MEETING

EROSION CONDITION IN IOWA IN 1935:

15,000,000 acres less than $1/4$ of topsoil removed
 17,000,000 acres $1/4$ to $3/4$ topsoil removed
 3,250,000 acres more than $3/4$ topsoil removed
 5,000 acres in Marion County destroyed

Droughts of 1934 and 1936 did much to accelerate erosion by bringing about a reduction in humus and organic matter in the soil.

Conservation is use without waste. In 1942 farm accidents cost the equivalent of 10 bu. of corn for each person in the United States in lost time.

The results of erosion and the problems of conservation effect, not only the individual who lives on the farm, but society as a whole.

Before starting to do any job we should have a blue print or plan to go by. Therefore, if we are going to do a good job of conservation farming we should have a plan to follow.

A GOOD FARM CONSERVATION PLAN SHOULD PROVIDE FOR THE FOLLOWING:

Correct land use.

A system of cropping and soil treatments which will maintain the fertility of the soil and help prevent erosion.

Special practices such as drainage, contour farming, buffer strips, strip cropping, terraces, diversions, contour furrows, ponds, etc., if they are necessary.

Field arrangements which will contribute to good rotations, eliminate point rows in contour farming, and make stock water available for each field.

Good pasture for at least eight months of the year by the use of supplementary pastures and the renovation of permanent pastures.

Type of livestock and feeding methods which will make most efficient use of feeds produced on the farm.

CORRECT LAND USE

Correct land use is the development of plans which over a long period of time will best serve the general welfare. Putting the land to the use which will give the best return and at the same time keep it in place.

The first step necessary to get correct land use is to make a conservation survey map of the farm showing soil type, slope, degree of erosion, and topsoil remaining. These conditions are then grouped into land use or capability classes as shown on the "Land Recommendations According to Use Capability" sheets.

FORMATION OF SOILS

There are four types of parent material from which local soil types are formed:

WIND BLOWN MATERIALS

Prairie Types

Tama silt loam
Sully silt loam
Taintor silt loam
Mahaska silt loam
Lacey silt loam
Haig silt loam

Transition Types

Givin silt loam
Downs silt loam
Pershing silt loam

Forest Types

Clinton silt loam
Keosauh silt loam
Weller silt loam

ICEBORN MATERIALS

Shelby loam and silt loam

Lindley loam and
silt loam

RESIDUAL MATERIALS

Bauer silt loam

Gosport silt loam

WATER LAID MATERIALS

From Prairie Upland

Wabash soils
Bremer soils
Waukesha silt loam
Chariton silt loam

From Forest Upland

Sharon soils
Jackson silt loam
Calhoun silt loam

PLANNING MEETING NO. 2

I. Opening of meeting by group leader

LECTURE METHOD

- II. Review first meeting (5-10 minutes)
- A. Requirements or factors to be considered in a good farm conservation plan
 - B. Correct land use
 - C. Reading conservation survey map

COMBINATION LECTURE AND DISCUSSION METHOD (Charts)

- III. Crop rotation and soil treatments (50-60 minutes)
- A. A crop rotation is a recurring succession of crops grown on the same land and must include a legume and grasses to be effective in maintaining the fertility of the soil and controlling erosion
 - B. List reasons for using crop rotations on the blackboard again
 - 1. Maintain and improve fertility of the soil (use chart 1/15 which road shall we follow)
 - a. Legumes - discuss why effective in maintaining nitrogen
 - 2. Conserve soil and moisture (chart 3/15, soil losses in tons per acre from different cropping systems)
 - a. Rotations must include a grass as well as a legume
 - b. Fall seeded small grain following soybeans and silage corn
 - c. Rotations with maximum cover
 - 3. Weed control
 - a. We still have a weed problem in corn field but have been checking corn since 1880 to control weeds. Is this the answer?
 - b. Better weed control is obtained through the use of longer meadow and the clipping of stubble fields
 - 4. Disease and insect control
 - a. Corn borer, chinch bugs, root rots, and other plant diseases
 - 5. Increase farm income
 - a. Increase yields (chart 1/15 and 4/15 soil management pays on Iowa farm land)
 - b. Diversification of crops
 - (1) Eggs not all in one basket
 - (2) Distribution of labor
 - c. Bushels, not acres is important
 - (1) High yields
 - (a) Work out example using low yield vs. high yield deducting cost of production for net income
 - (2) Hay or rotation pasture can be used to replace corn
 - C. Soil treatments - needed in addition to good rotations
 - 1. Plant food removed in farm products (chart 15/15)
 - a. More plant food removed by erosion than by crops (rolling land)
 - b. Not all plant food available
 - 2. Applications of treatments
 - a. Lime - as needed
 - b. Nitrogen from legumes by inoculation

- c. Phosphorous in form of commercial fertilizer
 - (1) Explain fertilizer analysis
- d. Potash if needed
 - (1) 1943 results on corn
- e. Green manure
 - (1) Plowed down while succulent for emergency nitrogen
 - (2) Let mature for lasting humus and organic matter
- f. Barnyard manure
 - (1) Worth \$2.00 to \$3.00 per ton
 - (2) Loss to farmers from careless handling
- g. Amount of fertilizer to apply
 - (1) Example (Amount of phosphorous removed by a rotation, amount that can be returned by good use of manure and the amount necessary to apply for replacement)
- h. Chart 9/15 value of soil treatments

IV. Special practices - (45-50 minutes)

- A. Drainage - importance
- B. Contour farming
 - 1. Advantages
 - a. Simple practice
 - b. Saves soil 30-50 per cent
 - c. Saves moisture 10-20 per cent
 - d. Increase yields 10 or more per cent
 - e. Saves time and fuel
 - 2. Disadvantages
 - a. Drilled corn
 - b. Weeds
 - c. Takes more time
 - d. Point rows
- C. Buffer strips - types
 - 1. Advantages
 - a. Eliminates point rows
 - b. Better erosion control
 - 2. Disadvantages
 - a. Not able to put entire field to same crop
 - (1) Hay from buffer strips worth as much as corn from balance of field
 - b. Difficulty of taking hay off
- D. Strip cropping
 - 1. Advantage
 - a. Better erosion control
 - 2. Disadvantages
 - a. Problem of pasturing
 - b. Insects
- E. Terraces - best mechanical erosion control method known
 - 1. Advantages
 - a. Why effective
 - b. Field all in one crop
 - c. Fewer waterways needed
- F. Grassed waterways
 - 1. Needed wherever water concentrates in all types of farming
 - 2. Should be seeded primarily to grasses

SUMMARY OF PLANNING MEETING #2

A SYSTEM OF CROPPING AND SOIL TREATMENTS SHOULD BE USED WHICH WILL MAINTAIN THE FERTILITY OF THE SOIL AND HELP PREVENT EROSION.

A crop rotation is a recurring succession of crops grown on the same land and must include a legume and grasses to be effective in maintaining the fertility of the soil and controlling erosion.

Nitrogen supplies in the soil are maintained or increased by the use of such legumes as alfalfa, sweet clover, and red clover.

The use of such grasses as brome grass and timothy helps to prevent erosion by forming a sod and increasing the supply of humus and lasting organic matter.

A crop such as winter wheat or rye should be seeded on erosive land where soybeans have been grown or where corn has been cut for silage or fodder. Burning of corn stalks, small grain stubbles, and other crop residues destroys organic matter which should be incorporated into the soil to help build fertility and prevent erosion.

Weed control is obtained by slipping new seedings and the use of perennial hay crops.

Diversification of crops, distribution of labor load, and higher yields per acre all tend to increase farm income.

Bushels of corn per acre should be the goal of a farmer rather than number of acres in corn. Where good rotations are used, legume hay and rotation pasture will decrease the need for corn on the farm fed to hogs about $1/3$ compared with dry lot feeding.

Good rotation alone will not maintain the fertility of the soil as the mineral elements taken out by the crops and erosion, cannot be replaced except by soil treatments.

The following table shows the amounts of nitrogen, phosphorous, potassium, and calcium contained in the various farm products:

	Yield	Nitrogen	Phosphorous	Potassium	Calcium
Corn (Includes stover & Cobs)	50 bu.	78.4	27.6	55.2	46.8
Oats (Includes straw)	50 bu.	48.0	18.0	40.0	21.6
Wheat (Includes straw)	25 bu.	42.5	16.6	21.0	12.5
Soybeans	10 bu.	53.0	18.0	20.0	
Alfalfa Hay	3 ton	147.0	30.0	126.0	214.5
Clover Hay	2 ton	84.0	20.0	80.0	121.0
Soybean Hay	2 ton	92.0	28.0	44.0	
Sweet Clover (2nd year)	2 ton	89.6	17.4	86.0	95.0
Blue Grass	1 ton	26.2	10.1	30.2	15.0
Fat Steer	1000 lbs.	23.3	15.5	1.8	16.46
Fat Lamb	80 lbs.	1.56	1.0	.14	1.0
Fat Pig	200 lbs.	3.5	1.3	.28	1.27
Milk	1000 lbs.	6.0	1.7	1.7	1.7

* Reference: Soils & Soil Management by C. E. Miller

Nitrogen that is lost in the production of crops can be replaced by growing inoculated legumes such as clovers and alfalfa in the rotation.

Calcium can be replaced by liming the soil according to tests. Lime should be applied at least six months and preferably a year before legume seedings. It will be necessary to relime the land every 10 to 15 years.

Potassium and complete fertilizers are not recommended for general farm use at the present time. It may be desirable to use 0-20-10 fertilizer with corn to balance the high nitrogen supplies and increase corn yields.

Phosphorous that is removed by crops should be replaced by applying 200 lbs. of 0-20-0 fertilizers or its equivalent per acre once in a four year rotation. Phosphorous should be applied at the time of seeding the grass and legume mixture. Corn, grain, and hay crops yield more and have a higher phosphorous content when grown on land where phosphorous has been applied.

By feeding all the grain and roughage that is produced on the farm it is possible to return 60 to 70 percent of the plant food removed by crops in the form of manure, if the manure is cared for properly. Careless handling of manure costs the average farmer in Iowa one dollar per acre per year.

Plowing under crops such as sweet clover and red clover as green manure, increases the nitrogen supply in the soils but for lasting humus and organic matter these crops should be allowed to mature before plowing under.

SPECIAL PRACTICES SUCH AS DRAINAGE, CONTOUR FARMING, BUFFER STRIPS, STRIP CROPPING, TERRACING, DIVERSIONS, PONDS, CONTOUR FURROWS, ETC. SHOULD BE USED IF THEY ARE NECESSARY.

If available the District will furnish technical assistance in establishing practices.

Soils must be well drained to produce good crops. Unless drainage is either there or provided, optimum growing condition will not develop in the soil. Response to soil treatments will generally be unsatisfactory.

Contour farming is a simple practice and is required on all land with more than a 2% slope. Crop yields are increased 10% or more and soil losses reduced 50% by this practice.

Point rows in contour farming can be eliminated by use of buffer strips.

Rotation strip cropping gives better erosion control than either contour farming or buffer striping.

Terraces are the most effective mechanical means of erosion control and can be built with tractor and plow, but it is essential that the water disposal system be established before terracing.

SUMMARY OF PLANNING MEETING #2

A SYSTEM OF CROPPING AND SOIL TREATMENTS SHOULD BE USED WHICH WILL MAINTAIN THE FERTILITY OF THE SOIL AND HELP PREVENT EROSION.

A crop rotation is a recurring succession of crops grown on the same land and must include a legume and grasses to be effective in maintaining the fertility of the soil and controlling erosion.

Nitrogen supplies in the soil are maintained or increased by the use of such legumes as alfalfa, sweet clover, and red clover.

The use of such grasses as brome grass and timothy helps to prevent erosion by forming a sod and increasing the supply of humus and lasting organic matter.

A crop such as winter wheat or rye should be seeded on erosive land where soybeans have been grown or where corn has been cut for silage or fodder. Burning of corn stalks, small grain stubbles, and other crop residues destroys organic matter which should be incorporated into the soil to help build fertility and prevent erosion.

Weed control is obtained by slipping new seedings and the use of perennial hay crops.

Diversification of crops, distribution of labor load, and higher yields per acre all tend to increase farm income.

Bushels of corn per acre should be the goal of a farmer rather than number of acres in corn. Where good rotations are used, legume hay and rotation pasture will decrease the need for corn on the farm fed to hogs about 1/3 compared with dry lot feeding.

Good rotation alone will not maintain the fertility of the soil as the mineral elements taken out by the crops and erosion, cannot be replaced except by soil treatments.

The following table shows the amounts of nitrogen, phosphorous, potassium, and calcium contained in the various farm products:

	Yield	Nitrogen	Phosphorous	Potassium	Calcium
Corn (Includes stover & Cobs)	50 bu.	78.4	27.6	55.2	46.8
Oats (Includes straw)	50 bu.	48.0	18.0	40.0	21.6
Wheat (Includes straw)	25 bu.	42.5	16.6	21.0	12.5
Soybeans	10 bu.	53.0	18.0	20.0	
Alfalfa Hay	3 ton	147.0	30.0	126.0	214.5
Clover Hay	2 ton	84.0	20.0	80.0	121.0
Soybean Hay	2 ton	92.0	28.0	44.0	
Sweet Clover (2nd year)	2 ton	89.6	17.4	86.0	95.0
Blue Grass	1 ton	26.2	10.1	30.2	15.0
<hr/>					
Fat Steer	1000 lbs.	23.3	15.5	1.8	16.46
Fat Lamb	80 lbs.	1.56	1.0	.14	1.0
Fat Pig	200 lbs.	3.5	1.3	.28	1.27
Milk	1000 lbs.	6.0	1.7	1.7	1.7

*.Reference: Soils & Soil Management by C. E. Miller

Nitrogen that is lost in the production of crops can be replaced by growing inoculated legumes such as clovers and alfalfa in the rotation.

Calcium can be replaced by liming the soil according to tests. Lime should be applied at least six months and preferably a year before legume seedings. It will be necessary to relime the land every 10 to 15 years.

Potassium and complete fertilizers are not recommended for general farm use at the present time. It may be desirable to use 0-20-10 fertilizer with corn to balance the high nitrogen supplies and increase corn yields.

Phosphorous that is removed by crops should be replaced by applying 200 lbs. of 0-20-0 fertilizers or its equivalent per acre once in a four year rotation. Phosphorous should be applied at the time of seeding the grass and legume mixture. Corn, grain, and hay crops yield more and have a higher phosphorous content when grown on land where phosphorous has been applied.

By feeding all the grain and roughage that is produced on the farm it is possible to return 60 to 70 percent of the plant food removed by crops in the form of manure, if the manure is cared for properly. Careless handling of manure costs the average farmer in Iowa one dollar per acre per year.

Plowing under crops such as sweet clover and red clover as green manure, increases the nitrogen supply in the soils but for lasting humus and organic matter these crops should be allowed to mature before plowing under.

SPECIAL PRACTICES SUCH AS DRAINAGE, CONTOUR FARMING, BUFFER STRIPS, STRIP CROPPING, TERRACING, DIVERSIONS, PONDS, CONTOUR FURROWS, ETC. SHOULD BE USED IF THEY ARE NECESSARY.

If available the District will furnish technical assistance in establishing practices.

Soils must be well drained to produce good crops. Unless drainage is either there or provided, optimum growing condition will not develop in the soil. Response to soil treatments will generally be unsatisfactory.

Contour farming is a simple practice and is required on all land with more than a 2% slope. Crop yields are increased 10% or more and soil losses reduced 50% by this practice.

Point rows in contour farming can be eliminated by use of buffer strips.

Rotation strip cropping gives better erosion control than either contour farming or buffer stripping.

Terraces are the most effective mechanical means of erosion control and can be built with tractor and plow, but it is essential that the water disposal system be established before terracing.

Grass waterways for water disposal are essential in all areas where water is concentrated.

Diversion may be used to control heads of gullies or to keep hill water off of bottom land.

Ponds provide a good source of water for livestock and serves as a gully control measure. When the drainage area is from 3 to 8 acres a sod spillway may be used.

Contour furrows are used in pastures as moisture and gully control measures.

WATERWAY, MEADOW SEEDINGS

Any waterway to be seeded should have lime, manure and in some cases fertilizer thoroughly worked into the soil, then after seeding top dressed with manure, stack bottom.

Waterway Seed Mixture

Limed Soil	Unlimed	Tendency to be wet
Alfalfa 4-5#		Red Top 3-4#
Alsike Clover 2#	3#	3#
Brome Grass 5-8#	5-6#	5-6#
Timothy 4-6#	4-5#	4-5#

Where waterways have more than 10-12 acre drainage or subject to severe erosion alfalfa should be left out of mixture and heavier seedings of grass used. For more information see "Grassed Waterways" Pamphlet 33.

Meadow Seed Mixtures

Unlimed soil			
1 year		2 year	3-5 year
Red Clover	5-6#	Same as 1 year	Same as 1 year
Alsike Clover	2-3#		
Timothy	5-7#		
Limed soil			
1 year		2 year	3-5 year
Red Clover	8-10#	Alfalfa 5-6#	Alfalfa 10-12#
Alsike Clover	1-2#	Red Clover 3-4#	Brome Grass 5-8#
Timothy	5-7#	Alsike Clover 1-2#	
		Timothy 4-6#	

When wet spots are an important factor on any field, limed, or not, alsike clover should be seeded heavier on these areas than is shown in the regular seeding mixtures and other legumes left off.

* On poor unlimed soils 4-5# of lespedeza should be added to the 1-year meadow mixture, red clover reduced to 4-5#, and alsike clover to 1-2#.

1. The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom.

2. The second part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom.

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PLANNING MEETING NO. 3

I. Opening by group leader

LECTURE METHOD

II. Review of planning meeting No. 2 (take about 10-15 minutes for this review)

COMBINATION LECTURE AND DISCUSSION (charts, enlarged maps of farm planned)

III. Provide good pastures for 8 months of the year (20-25 minutes)

- A. Importance of pasture as a crop
- B. Chart 11/15 Iowa Pasture Calendar
- C. Chart 13/15 Iowa Pasture Program
- D. Rotation of pasture and deferred grazing program

IV. Woodland and wildlife (10-15 minutes)

- A. Need for wood products on farm
- B. Gullied, sheet eroded or odd corners suitable for woodland and wildlife areas
- C. Income from wildlife in state during one year
 - 1. \$1,000,000.00 income from furs
 - 2. Fish, meat, etc.
- D. Cooperation with Conservation Commission

V. Planning by group of farm selected in previous meeting (35-40 minutes)

- A. Study of capability map. (This map should be enlarged 3 to 4 times)
- B. Study present land use
- C. Make adjustments in land use (field arrangements)
 - 1. Cropland
 - a. Plan rotation, soil treatments and practices
 - b. Plan field arrangements or divisions
 - 2. Hayland
 - a. Plan seedings, treatments, practices
 - 3. Pasture land
 - a. Plan seedings, treatments, practices, management, and water supply
 - 4. Woodland and wildlife

VI. Presentation of farm plan, on farm selected by the group, as worked out by farmer with the assistance of planning technician (15-20 min.)

- A. Follow same procedure as above under V - A, B, & C.
- B. Show effect of plan on farm

VII. Make dates to go over farms with those in the group who are interested in working out farm conservation plan

VIII. Set date for fourth meeting

IX. Give each one present a summary of the material presented at this meeting. This material should be fastened in his folder.

MATERIAL NEEDED:

- 1. Charts 11/15 and 13/15
- 2. Complete farm conservation plan for farm selected by group at Planning Meeting No. 2
 - a. Enlarged and colored conservation survey map of farm planned
 - b. Enlarged land use map of farm after planning
 - c. Cropping plan
 - d. Summary of effects of the plan upon the farm enterprise
- 3. Summary of Planning Meeting No. 3

SUMMARY PLANNING MEETING #3

4. FIELD ARRANGEMENTS SHOULD BE USED WHICH WILL CONTRIBUTE TO GOOD ROTATIONS, ELIMINATE POINT ROWS IN CONTOUR FARMING, AND MAKE STOCK WATER AVAILABLE FOR EACH FIELD.

Since contour farming is a necessity in farming operations we should rearrange fields with the fences on the contour to eliminate point rows. By arranging fields on the contour, cultivated land can usually be separated from poorer land which should be used for hay or pasture.

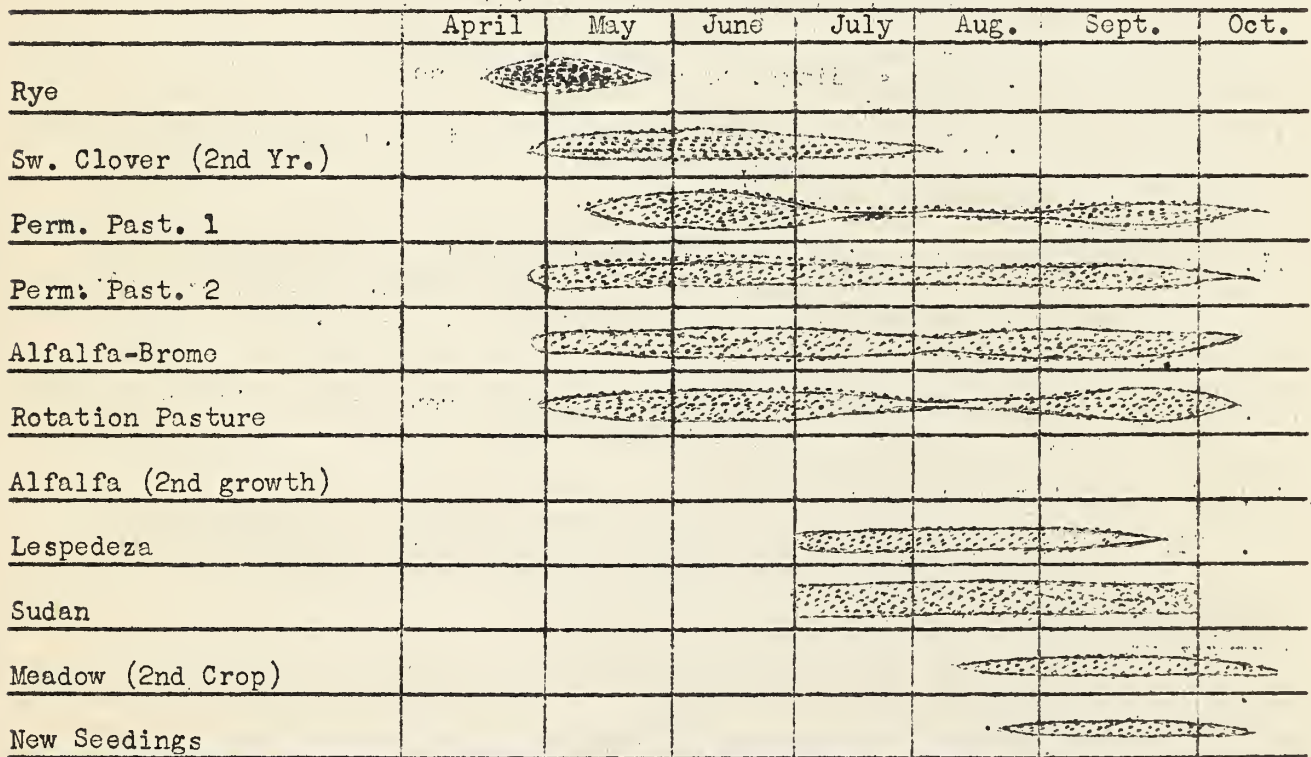
Field rearrangement should be made as labor and materials permit.

5. GOOD PASTURES SHOULD BE PROVIDED FOR AT LEAST EIGHT MONTHS OF THE YEAR BY THE USE OF SUPPLEMENTARY PASTURE AND THE RENOVATION OF PERMANENT PASTURE.

It is very necessary in any farm plan to consider pasture as an important part of the plan. One method to reseed a pasture is to graze closely or clip early in the fall, apply lime according to test, and disc lightly to mix lime with the surface soil. Early the following spring disc heavily to prepare a good seed bed and seed to a mixture of legumes. Grasses should be added where the stand is thin. Top dress the poor eroded spots with barnyard manure.

For reseeding mixtures and fertilizer applications refer to Iowa Extension Bulletin P-8 (New Series) Pasture Management.

The following chart shows the best pasture seasons for the different crops. The width of the bar indicates the relative productivity or carrying capacity (Wide bar indicates much feed, narrow bar little feed).*



It is possible by the use of more supplementary pasture, such as alfalfa-brome grass, sweet clover, and lespedeza, during season to save blue grass pastures primarily for fall and winter months, thus stretching the pasture season for beef cattle and sheep to a full eight months or longer in open winters.

The value of pasture is largely lost if during a part of the growing season the grassing is of poor quality or growth is insufficient to keep the animals thrifty and growing. Under no circumstances should permanent pasture be overgrazed. Pasture should be arranged to permit rotation grazing.

6. TYPES OF LIVESTOCK AND FEEDING METHODS SHOULD BE USED WHICH WILL MAKE MOST EFFICIENT USE OF FEEDS PRODUCED ON THE FARM.

All the feed produced on the farm should be fed to livestock and the manure returned to the land to help maintain its fertility.

If additional feed is bought and fed on the farm the additional manure will increase the fertility of the soil.

The following table is a list of the feed requirements that are necessary to produce or maintain the different kinds of livestock under normal feeding conditions.*

	Corn (Bushels)	Small Grain (Bushels)	High Protein in feed (lbs.)	Legume Hay (Ton)	Pasture (Days)
Milk Cows ave. 300 lbs. B.F.	19	26	250	3	180
Dairy Bulls	10	20	100	3	180
Yearlings	8	10	110	1-1/2	100
Calves to 1 year	4	6	50	1	50
Beef Cows	4	xx	xx	2	240
Beef Bull	10	7	xx	2	240
Yearling Heifers	6	7	xx	1	100
Heifer Calves	4	5	xx	3/4	50
Feeding Calves	45	5	250	1/2	50
Feeding Yearlings	45	4	230	1/2	50
Feeding 2-yr olds	41	xx	170	1/2	50
Ewes & Ram	1-1/4	2-1/2	15	1/5	40
Feeding Lambs	2	1/2	20	1/10	15
Market Hogs	16	6	75	xx	10
Laying Hens (100)	75	112	1,500	xx	xx
Pullets (100)	17	42	450	xx	xx
Chicks (100)	7	11	200	xx	xx
Work Horses	25	40	xx	1-3/4	150
Yearling & 2-yr olds	12	20	xx	1	200
Foals	8	15	xx	3/4	100

* (Reference: "Approximate Feed Requirements for Livestock" by C. W. McDonald)

There is a need for wood products in the form of posts and lumber on every farm. Gullied, badly sheet eroded, or steep areas, and odd corners make ideal sites for farm woodlots. These areas along with grass waterways and wooded draws, when protected from fire and grazing, provide good cover for wildlife.

Any farmer may cooperate with the Iowa Conservation Commission by including the following paragraph in his or her Farmer District Cooperative Agreement:

"Wildlife will be protected and its propagation encouraged by leaving grass nesting areas in fence corners and along fence rows. Feed and gravel will be provided when necessary during the winter months. The farm will be posted and hunting controlled in cooperation with the Iowa State Conservation Commission to the extent that seedstock of game on the farm will be protected until a shootable surplus of game has been produced and then hunting will be permitted to the extent of harvesting the surplus game crop."

PLANNING MEETING NO. 4

I. Opening of meeting by group leader

LECTURE METHOD

II. Review (5-10 minutes)

- A. Requirements of a good farm conservation plan as developed in meeting No. 1 by the group

DISCUSSION ON METHOD

III. Check cooperative agreements against requirements and see if written as planned by farmer - (1-1/2 to 2 hours)

- A. Capability map (review)
- B. Land use map
 - 1. Numbering of fields and field acreage
 - 2. Field boundaries
 - 3. Land use
 - 4. Practices
- C. Program of conservation operations
 - 1. General
 - 2. Typed or individual
 - a. Check rotations
 - b. Check against land use map
- D. Crop plan
 - 1. Check field numbers and acres
 - 2. Rotation
 - 3. Crops by years
 - 4. Soil treatments by years
 - 5. Practices - check time and amount to be accomplished
 - 6. Crop summary
- E. Farm organization summary
 - 1. Check crops and production
 - 2. Check livestock numbers and food for each class of livestock
 - a. Discussion of feeding methods
 - 3. Check balance on farm
- F. Read Farmer-District Cooperative Agreement form
- G. Sign agreement
- H. Make up calendar of work if seasonable

During this meeting, it is important that enough time be spent on each form for every individual to fully understand what is included.

MATERIAL NEEDED

All farm plans complete ready for review and signature



PROGRAM OF CONSERVATION OPERATIONS

General

THE COOPERATOR AGREES TO:

Not burn any fence rows or crop residues such as corn stalk, grain stubble, etc.

Establish and to maintain meadow strips in all drainage ways.

Conserve and carefully use all available solid and liquid manures, applying some at the rate of 8 tons per acre to rotation meadow in the fall and winter preceding the corn year, or to permanent pasture or hay at any time of the year.

Leave the last crop of hay as a manure crop on each rotation field as it goes to corn if hay can be spared from the feed requirements.

Clip pastures when weeds are in bloom stage, and to clip grain stubble and new seedings the last two weeks of August. Red clover can be injured by later clipping.

Plant trees, construct fence, apply limestone, fertilizer, and practices according to the cropping plan.

IT IS FURTHER AGREED:

That one row crop may be substituted for another, or a grain crop or meadow may be substituted for a row crop.

That the cropping plan including the soil treatment and practice program should be followed closely for quickest and greatest increase in per-acre yield and total farm income.

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28. 28. 28.

PROGRAM OF CONSERVATION OPERATIONS

General

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IT IS FURTHER AGREED:

That one row crop may be substituted for another, or a grain crop or meadow may be substituted for a row crop.

That the cropping plan including the soil treatment and practice program should be followed closely for quickest and greatest increase in per-acre yield and total farm income.

That the district and the farmer will cooperate with the State Conservation Commission in the Game Management Program as follows:

"Wildlife will be protected and its propagation encouraged by leaving grass nesting areas in fence corners and along fence rows. Feed and gravel will be provided when necessary during the winter months. The farm will be posted and hunting controlled in cooperation with the Iowa State Conservation Commission to the extent that seedstocks of game on the farm will be protected until a shootable surplus of game has been produced and then hunting will be permitted to the extent of harvesting the surplus game crop." The State will furnish the signs for posting the farm and trespass permit books to be issued to the hunter by the farmer.

By: John A. Richardson

Land Use Map: Information to Show:

Field numbers
 Field divisions, where possible
 Land use
 Drainage ways and terrace outlets
 Ponds
 Practice to be used
 Fences

SCS 196 Practices to Show:

Terraces, fence construction
 Waterway construction and seeding
 Pond
 Trees
 Combined treatment
 Levee construction
 Contour furrow construction

Cropping Plan

Name of owner and operator

Land use, total acres

Rotation, kind

The year: 1. Terraces to be built - feet

Ponds are to be built

Number of shrubs and trees to be planted

12. Pasture is to be reseeded

9. Lime is to be applied

10. Fertilizer is to be applied

11. Contouring is to be started

8. Fence is to be removed, or relocated, or constructed

3. Diversions are to be built - feet

7. Contour furrows, acres

2. Terrace outlet to be built - feet

4. Sod flume to be built, cu. yds.

5. Tile to be laid, rods

6. Tile outlet structures

* Wind break planting

* Orchards layout planting

Crop Summary

* Require special planting guide maps showing conservation practices and location of different species of trees to be planted,

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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